

Programme Specification		
1	Awarding Institution/Body	University Centre Leeds
2	Delivery Location(s)	Mabgate Campus
3	Programme Externally Accredited by (e.g. PSRB)	N/A
4	Award Title(s)	FD Computer Science (Cyber Security) FD Computer Science (Data Analysis) FD Computer Science (Software Development) CertHE Computer Science (Cyber Security) - 120 credits from level 4 CertHE Computer Science (Data Analysis) - 120 credits from level 4 CertHE Computer Science (Software Development) - 120 credits from level 4
5	UCAS Code	I101 - FD Computer Science (Cyber Security) I259 - FD Computer Science (Data Analysis) I309 - FD Computer Science (Software Development)
6	Apprenticeship	N/A
7	HECoS Code and Description	100376 – computing and information security 100755 – data management 100374 – software engineering
8	Mode of Attendance	Full-time face to face
9	Relevant QAA Subject Benchmarking Group(s)	Subject Benchmark Statement, Computing, March 2022
10	Relevant Additional External Reference Points <i>(e.g. National Occupational Standards, PSRB Standards)</i>	Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (FHEQ) National Occupational Standards (NOS): Software Developer, Cyber Security Technologist, and Data Analyst, as outlined by the UK Tech Partnership and the UK Cyber Security Council. Professional, Statutory and Regulatory Body (PSRB) Standards: - British Computer Society (BCS) – particularly their standards for accreditation of higher education programmes in computing. - The Institute of Cyber Digital Investigation Professionals (ICDIP) – ethical and investigative standards for cyber-related programmes.

		The Chartered Institute for IT (CIIT) – professional practice expectations across software development and data roles. Tech Nation Report Data Protection and Cybersecurity Regulations HTQs: Data Analyst Cyber Security Technician Software Developer																								
11	Date of Approval/ Revision	September 2026																								
12	Criteria for Admission to the Programme <u>Entry Criteria</u> <table><tr><td></td><td>Typical Offer</td><td>Minimum Offer</td></tr><tr><td>UCAS tariff points:</td><td>48 UCAS tariff points from two A-levels (or equivalent qualifications), one of which must be in a relevant subject</td><td>16 UCAS tariff points from one A-level (or an equivalent qualification), in a relevant subject or experience</td></tr><tr><td>IELTS:</td><td colspan="2">IELTS 6.0 with no less than 5.5 in any component.</td></tr><tr><td>International qualifications:</td><td colspan="2">International qualifications will be assessed against these criteria</td></tr><tr><td>Mature applicants:</td><td colspan="2">University Centre Leeds welcomes applications from mature* applicants who may not have met the academic criteria, but who can demonstrate a wealth of experience in their chosen field. Candidates in this category and otherwise are likely to be assessed on their suitability for the course and may be asked to provide a portfolio of evidence to support their application. *21 years and over at the start of the course</td></tr><tr><td>RPL claims:</td><td colspan="2">The course structure actively supports claims for Recognition of Prior Certified Learning (RPCL) or Recognition of Prior Experiential Learning (RPEL)</td></tr></table> <u>Additional entry criteria</u> <table><tr><td></td><td>Criteria</td></tr><tr><td>GCSE English: Desirable</td><td>English Language Grade 4 or above. Key Skills Level 2, Functional Skills Level 2, and the Certificate in Adult Literacy are accepted in place of GCSEs.</td></tr><tr><td>GCSE Maths: Essential</td><td>Maths Grade 4 or above. Key Skills Level 2, Functional Skills Level 2, and the Certificate in Adult Numeracy are accepted in place of GCSEs</td></tr></table>			Typical Offer	Minimum Offer	UCAS tariff points:	48 UCAS tariff points from two A-levels (or equivalent qualifications), one of which must be in a relevant subject	16 UCAS tariff points from one A-level (or an equivalent qualification), in a relevant subject or experience	IELTS:	IELTS 6.0 with no less than 5.5 in any component.		International qualifications:	International qualifications will be assessed against these criteria		Mature applicants:	University Centre Leeds welcomes applications from mature* applicants who may not have met the academic criteria, but who can demonstrate a wealth of experience in their chosen field. Candidates in this category and otherwise are likely to be assessed on their suitability for the course and may be asked to provide a portfolio of evidence to support their application. *21 years and over at the start of the course		RPL claims:	The course structure actively supports claims for Recognition of Prior Certified Learning (RPCL) or Recognition of Prior Experiential Learning (RPEL)			Criteria	GCSE English: Desirable	English Language Grade 4 or above. Key Skills Level 2, Functional Skills Level 2, and the Certificate in Adult Literacy are accepted in place of GCSEs.	GCSE Maths: Essential	Maths Grade 4 or above. Key Skills Level 2, Functional Skills Level 2, and the Certificate in Adult Numeracy are accepted in place of GCSEs
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	NVQ Level 3	Pass
	T-Level 3	Pass
	Interviews:	Applicants may be required to attend an interview either because entry requirements have not been fully met or to review relevant experience before a final decision is made.
13	Educational Aims of the Programme This Foundation Degree in Computer Science has been developed in alignment with key occupational standards and external benchmarks, ensuring that students graduate with the knowledge, skills, and behaviours required by employers across the digital sector. It also prepares learners for progression into full honours degrees or Level 6 technical roles. The programme enables specialisation in one of three professional areas: Cyber Security, Data Analysis, or Software Development. The programme aims to: – Enable students to confidently apply industry-standard tools, methodologies, and platforms to design, build, and secure robust computing solutions relevant to their specialism – Prepare students for the workplace by developing technical and professional development skills. – Equip students with applied technical skills using industry-standard platforms such as, cloud services, and scripting tools. – Develop the student's ability to analyse complex technical problems and find evidence-based solutions, ensuring that decisions are data-driven and technically sound. – Cultivate a deep understanding of professional, legal, and ethical frameworks, empowering graduates to operate responsibly regarding data privacy, intellectual property, and security compliance within the digital sector. – Equip students with essential transferable skills, including effective communication, agile collaboration, and project management to function effectively as distinct professionals within diverse technical teams. – Foster independent learning and reflective practice, enabling students to autonomously manage their own professional development and adapt to the rapid pace of innovation and emerging technologies. – Empower students to progress seamlessly into Level 6 Honours degrees or enter the workforce as competent technical professionals, ready to contribute immediately to the digital economy.	
14	Learning Outcomes The programme will enable students to develop the knowledge and skills listed below. On successful completion of the programme, the student will be able to:	
	Knowledge and Understanding	

	K1	Evaluate theories and principles throughout computer science.	
	K2	Analyse software-specific techniques within computer science.	
	K3	Analyse the ethical and legal implications relevant to computer science.	
Cognitive/Intellectual Skills			
	C1	Assess sources to support appropriate data/evidence.	
	C2	Create and integrate new ideas and techniques into current practices.	
	C3	Appraise solutions for computing problems using relevant software and tools.	
Professional Skills			
	P1	Develop and use range of professional standard technical skills and workflows in a chosen computing sector.	
	P2	Create innovative solutions to complex challenges/problems using computing techniques.	
	P3	Integrate appropriate industry-standard tools and software in computing practices.	
	P4	Apply multiple frameworks to develop industry-relevant solutions.	
Key Transferable Skills			
	T1	Prepare clear, effective communication methods tailored to a specific context.	
	T2	Examine and assess emerging workflows and techniques in the computing industry.	
Specialist Skills – Cyber Security			
	CS1	Appraise and apply potential cyber security issues and appropriate methodologies, to propose effective mitigation strategies.	
	CS2	Demonstrate a thorough understanding of cybersecurity principles to explain how data confidentiality, integrity, and availability are maintained.	
Specialist Skills – Software Development			
	SD1	Analyse complex software development problems across multiple platforms and prepare structured engineering principles to design scalable, user-focused solutions.	
	SD2	Effectively apply software development methodologies, testing strategies, and platform-specific considerations in the implementation and testing of applications.	
Specialist Skills – Data Analyst			
	DA1	Identify and understand data-driven problems by selecting appropriate models, algorithms, and strategies to inform decision-making.	
	DA2	Use data analytical tools and techniques to gather and normalise to present insights from datasets.	
15	Key Learning & Teaching Strategy and Methods		
	The learning and teaching strategy for the FD Computer Science is designed to produce work-ready, technically proficient graduates who can immediately contribute to the digital economy. The core of our strategy is applied learning, where theoretical concepts are consistently reinforced through hands-on practice in an industry-informed environment. We foster innovation by embedding innovative topics, such as Artificial Intelligence (AI) and cloud computing, throughout the curriculum, ensuring students are not just learning current technologies but are also prepared for future advancements. The strategy is tailored to the programme's three distinct pathways. While all students build a common foundation, the learning methods in Level 5 are adapted to the specific demands of each specialism:		

Cyber Security: Emphasises practical learning in virtualised lab environments, simulating real-world threat scenarios and incident response.

Data Analysis: Focuses on project-based work with large datasets, using industry-standard tools for visualisation and modelling.

Software Development: Revolves around agile development sprints, collaborative coding projects, and building portfolio-worthy applications.

This programme is delivered full-time, face-to-face, or blended. It also prepares students for the tech sector, which is the most remote-friendly sector in the world. To support independent study, the programme uses a Virtual Learning Environment (VLE). This platform hosts asynchronous content, such as video tutorials, coding repositories, and forums allowing students to revisit complex technical concepts at their own pace. This also familiarise students with remote working tools commonly used in the industry.

The curriculum is structured around a trimester model, which allows for focused, intensive study on a smaller number of modules at any one time. This model was chosen to help students build a deep understanding of core topics before moving on. Student feedback was considered during the planning phase to ensure the pace of learning is manageable and effective.

A typical full-time week will involve approximately 10 hours of scheduled contact time, comprising a mix of the following methods and 1 hour tutorial. Students are also encouraged to work autonomously outside of this time.

Practical Workshops and Labs: These are the primary mode of teaching. Students will spend most of their time in dedicated computer labs, applying knowledge through coding, configuring systems, analysing data, and using industry-standard software (e.g., Python, Kali Linux, Power BI, Git).

Interactive Lectures: Used to introduce core theories, concepts, and ethical frameworks. These sessions are designed to be interactive, with embedded discussions, problem-solving activities, and peer collaboration.

Project-Based Learning: Many modules are structured around the completion of a significant project, allowing students to manage a development lifecycle from conception to delivery, mirroring professional practice.

Where opportunities arise, guest lecturers and industry speakers are invited to contribute to the programme — including practitioners working in senior technical, research, and leadership roles across Cyber Security, Data, and Software Development contexts. These contributions are integrated with taught sessions and project work rather than treated as standalone events, giving students direct exposure to how the theoretical and methodological concepts covered in the programme are applied, contested, and evolved in contemporary professional practice.

At Level 4, our focus is on building learner confidence and technical capability. During this first year, students will master the fundamental concepts of Computer Science through a highly supported learning environment. We prioritise hands-on guidance and structured feedback to ensure possession a solid technical foundation before advancing to their chosen specialism (Cyber Security, Data Analysis, or Software Development) at Level 5.

Digital innovation is central to our teaching, VLE, Blackboard, serves as the central hub for all learning materials, including lecture notes, practical exercises, video tutorials, and reading lists. The VLE is used to support face-to-face delivery through a number of ways. A repository for all course

	materials, accessible 24/7. Formative quizzes and discussion forums to consolidate learning outside of the classroom. All assessments are submitted digitally via the VLE. GitHub is embedded for version control and collaborative projects, while virtual labs and cloud platforms (e.g., AWS Educate) provide safe and scalable environments for practical work. The ethical and practical application of AI-supported tools will be critically explored in relevant modules.
16	Key Assessment Strategy and Methods Responding to industry requirements for "deep work" and student feedback regarding assessment volume, the strategy prioritises fewer, modules at one time. This approach reduces "assessment bunching," allowing students to focus on holistic, complex problems rather than fragmented tasks. This structural change ensures that the workload remains manageable while mirroring the sustained focus required in professional computing roles. The assessment strategy is designed to build capability rather than simply test memory. Whether students are following the Cyber Security, Data Analysis, or Software Development pathway, assessments reflect authentic workplace tasks. To ensure students develop into well-rounded professionals, the programme employs a deliberate balance of assessment domains. Approximately 50% of assessment involves the creation of functional artifacts, such as dashboards, software prototypes, or network architectures. Students are assessed on their ability to justify technical choices and analyse the principles underpinning their solutions. Embedded process logs require students to track their professional development, problem solving and collaboration skills. Recognising that tools like GenAI are standard in the modern developer's toolkit, the programme adopts a "Process over Product" policy. While written work follows the University Centre policy on academic misconduct we have had to respond to the use of AI in the practical assignment. This ensures academic integrity while preparing students for an AI-augmented workforce. Students are permitted to use GenAI for debugging, ideation, or syntax checking, this reflects the current industry use. To mitigate the risk of unauthored submissions, many assessments include a Viva or presentation. Students must verbally defend their logic, explain specific code snippets, and justify design decisions in real-time to verify authenticity. For coding and technical projects, students are expected to submit development logs. This allows examiners to trace the natural evolution of a project, ensuring the work represents a genuine developmental process rather than an instant AI-generated solution. • Project Portfolios: Individual or group-based tasks producing functional outputs (e.g., codebases, network configurations, visualisations). • Reports & Technical Documentation: Written tasks demonstrating evaluation, analysis, and synthesis of concepts (e.g., security risk assessments, algorithm comparisons). • Presentations & Pitches: Verbal or recorded presentations simulating stakeholder communication. • Practical Assessments: In-class or virtual demonstrations of coding, scripting, configuring systems, or using tools. • Research Proposals: Introduced at Level 5 to support academic and industry-relevant inquiry skills. • Reflective Logs: Encourage professional self-evaluation, collaboration, and meta-cognitive skill development.

	All assessments are digitally submitted via Blackboard with Turnitin enabled for written work. Use of collaborative platforms such as GitHub is encouraged and, where appropriate, integrated into the marking scheme. Assessment Progression by Level Level 4: Foundations The focus is on skill acquisition and confidence building. Assessments are shorter, more constrained, and supported by frequent formative feedback to ensure students grasp core concepts. Level 5: Application and Collaboration The focus shifts to critical analysis and independence. Assessment briefs become more open-ended (e.g., realistic client scenarios), requiring students to research independently and critically justify their approach among multiple potential solutions. Formative and Summative Feedback Formative tasks are embedded throughout modules via peer review sessions, test deployments, draft submissions, and tutor feedback loops. Summative assessments are supported by clear rubrics and feedforward-focused written feedback via standardised templates. AI use is considered and mitigated against within the assignments with things like development logs and natural assignment methods.
17	Industry Specific Skills Development The programme has been developed to ensure that students graduate with the technical and professional skills required by employers in the digital sector. Industry-specific skills are embedded across the curriculum through hands-on projects, tools training, and specialism-aligned modules. Each of the three pathways, Cyber Security, Data Analysis, and Software Development maps directly to the HTQ occupational standards, with content shaped by employer consultation and sector needs. The Cyber Security route focuses on preparing learners for roles such as Cyber Security Technician and Security Analyst. Students gain hands-on experience in: • Network configuration and security hardening (Routing Protocols, Securing Networks) • Penetration testing techniques using tools such as Kali Linux, Nmap, and Metasploit • Incident response planning and forensics (Cyber Ops & Computer Forensics) • Automating security workflows with Python scripting (Network Security Automation) • Applying standards and compliance frameworks such as ISO 27001 and NIST These skills are taught through real-world scenarios — e.g., conducting mock penetration tests, analysing network breaches, and creating system-hardening documentation — with feedback from employers, who validate task realism and industry relevance. Data Analysis Pathway prepares students for roles such as Data Analyst, BI Analyst, or Junior Data Scientist, with an emphasis on: • Data cleaning, wrangling, and transformation using Python, Pandas, and SQL • Statistical analysis and modelling (Computational Statistics, Maths for Data & AI) • Data visualisation and storytelling using tools like Power BI and Jupyter Notebooks • Designing BI dashboards and decision-making tools (Business Intelligence Analytical Tools)

Assignments mirror workplace tasks such as producing client dashboards, building ML classifiers, and reporting insights to stakeholders. Module content is based on employer input highlighting the need for graduates who can translate data into business impact.

Software Development Pathway aligns with the occupational standard for Software Developer and includes skills in:

- Object-oriented and event-driven programming using Python, JavaScript, and frameworks like React
- Version control and team collaboration using Git and GitHub
- Frontend and mobile application development (Frontend Frameworks, Mobile App Development)
- Testing and debugging using professional frameworks (Mobile app development)
- API design, integration, and documentation (Web API Development)
- Agile workflows and DevOps concepts applied through collaborative project sprints

Students produce working software, code documentation, and test logs, with a focus on maintainability, scalability, and deployment, reflecting the expectations of real-world software teams.

The curriculum has been shaped through active employer consultation, including feedback from employers and local SMEs across the Cyber Security and AI sectors. This engagement has been complemented by analysis of national and regional skills intelligence, which identified several high-demand areas, such as:

- Cloud platforms and DevOps tools (e.g., AWS, Azure, Docker)
- Automation and scripting (e.g., Python for systems tasks)
- Real-time data processing and analytics (e.g., stream processing, dashboarding with Power BI)
- Cybersecurity tooling and protocols (e.g., Wireshark, Nmap, Kali Linux)

These priorities are echoed in several external reports and data sources, including:

- Tech Nation's Report on the UK Tech Sector (2022/2023), which highlights persistent demand for cloud engineers, cyber professionals, and data scientists.
[Tech Nation Report \(Archived\)](#)
- DCMS UK Cyber Security Labour Market Insights (2023), which reports acute shortages in penetration testing, incident response, and secure network architecture.
[DCMS Labour Market Report \(2023\)](#)
- NCSC CyberFirst and UK Cyber Security Council Occupational Frameworks, identifying role-specific skills such as vulnerability analysis, digital forensics, and security operations.
[UK Cyber Security Council Framework](#)

Informed by these sources and employer feedback, each module incorporates indicative content that reflects both current tools and realistic workplace tasks — ensuring students are equipped for immediate entry into specialist roles upon graduation.

Employer feedback consistently highlights that technical graduates often lack the ability to communicate. Consequently, this programme embeds Project Defences, Vivas, and Client Presentations to ensure graduates can articulate complex technical concepts to stakeholders.

	Industry feedback consistently indicates a shortage of graduates who understand the limitations and risks of AI, not just its capabilities. Employers across the Cyber Security, Data, and Software sectors have reported that early-career technologists frequently deploy AI tools without sufficient awareness of their failure modes, legal exposure, or downstream consequences. To address this, the programme embeds a dedicated strand of AI literacy, ethics, and safety content across all three pathways, with specific module learning outcomes designed to build critical judgement alongside technical competence. These competencies are reinforced through authentic assessment tasks such as producing AI risk assessments for project proposals, critiquing case studies of documented AI failures (e.g., biased recruitment tools, flawed facial recognition deployments, copyright disputes arising from generative models), and defending AI-assisted technical decisions during Project Defences and Vivas. Students are required to document their use of AI tools transparently across assignments, mirroring the disclosure practices increasingly expected in professional environments. This emphasis aligns with guidance from the UK AI Safety Institute, the Alan Turing Institute's work on responsible AI, and the Ada Lovelace Institute's recommendations on AI governance, alongside direct employer feedback confirming that responsible AI literacy is now a baseline expectation for graduate hires rather than a specialist concern.
18	Transferable Skills Development Transferable skills are embedded throughout the Foundation Degree in Computer Science, not as standalone outcomes, but through carefully designed module content, projects, and assessments that reflect professional practice. The programme aims to produce early-career technologists who combine genuine technical capability with the broad interpersonal, ethical, and organisational behaviours defined by the STEM7 framework and the HTQ occupational standards. At Foundation Degree level, the emphasis is on building the behavioural foundations — self-awareness, disciplined collaboration, and clear communication — that prepare students for Level 6 progression or direct entry into graduate technician roles. Communication is developed both technically and professionally across the programme, aligning with the STEM7 attribute of clear, audience-aware communication. In Year 1's Computer Systems and Network Fundamentals, students write technical documentation for configuring network devices, simulating the kind of report a junior IT technician would submit. In the Cyber Ops & Computer Forensics module, students deliver a simulated incident response presentation to a mock client board, explaining findings from a breach investigation in accessible, non-technical terms. Project Defences and Vivas require students to justify design decisions under questioning, building early confidence in defending technical choices to both peers and employer panels. This blend of technical writing and audience-aware speaking ensures students graduate with the ability to translate complex ideas for different stakeholders — a skill repeatedly flagged by employers as missing from technical graduates. Collaborative Teamwork is a core feature of delivery and mirrors the STEM7 behaviours around working effectively in diverse teams. In Year 2, students on the Software Development and Cyber Security pathways complete a group-based Agile sprint project, using cloud-based and team management platforms (GitHub, Jira/Trello, MS Teams) to simulate real development cycles. Students rotate through Scrum roles, manage stand-ups, and experience the realities of shared ownership — including handling disagreement, dependency management, and uneven contribution. Peer code reviews are integrated into this process, with each student giving and receiving structured feedback on code quality, task management, and professional conduct. This introduces the

collaborative disciplines — pull requests, merge conflicts, issue tracking — that underpin high-performing digital teams, directly mirroring the Software Developer and Cyber Security Technician occupational standards.

Problem-solving and Critical Thinking are embedded into authentic technical challenges rather than taught in isolation. In Web Development, students respond to a brief from a hypothetical client needing a secure solution; they must assess risks, plan endpoints, and justify design decisions. In Data Modelling and Visualisation, learners are tasked with analysing messy real-world data sets, determining the most relevant insights, and designing dashboards tailored to specific stakeholder needs. Assessments deliberately avoid single-correct-answer framings — students are expected to reason, justify, and critically evaluate trade-offs, developing the analytical judgement needed to move beyond tutorial-style problems into ambiguous workplace scenarios.

Commercial and Ethical Awareness is developed progressively across both years. Students learn to frame technical decisions in terms of cost, user impact, and risk — for example, weighing open-source versus licensed tooling, or evaluating the business case for a proposed security control. Ethical reasoning is built in through GDPR and data protection content, responsible AI usage (hallucination awareness, IP considerations, transparent disclosure of AI-assisted work), and case studies of real-world failures such as biased algorithms or data breaches. This ensures graduates can recognise the wider implications of their technical work, not just its functional correctness.

Reflection and Self-Management are integrated to help students develop professional identity and personal responsibility — key STEM7 behaviours. In the Professional Practice & Skills for Computing module (Year 1), students keep a reflective learning journal, evaluating their communication, time management, and personal growth throughout a team project. Reflective tasks are reinforced by personal tutorials and employability coaching, ensuring feedback is acted upon meaningfully. Students are introduced to the principles of Continuing Professional Development (CPD) early, auditing their own skill gaps and setting personal learning objectives — positioning them as lifelong learners rather than one-off graduates.

Organisation and Delivery Discipline are built through task breakdowns, time-boxed work, and deadline-driven delivery. Agile project simulations with real-time review points, Gantt chart planning for final project delivery, and version control workflows with commit histories and milestone tagging in GitHub give students practical experience of the planning behaviours expected in software, data, and cyber roles. Students learn to estimate effort, manage scope, and deliver incrementally — skills that are rarely taught explicitly but consistently identified by employers as differentiators between capable and struggling junior hires.

Emerging Leadership and Initiative are cultivated through opportunities for students to take ownership of discrete elements of group work — leading a sprint, presenting on behalf of a team, or acting as the nominated reviewer for a peer's code. While full leadership development sits at Level 6, the Foundation Degree deliberately builds the precursor behaviours: taking initiative, supporting peers, and demonstrating personal accountability under pressure.

From the start of the course, students are immersed in the tools and behaviours expected in the workplace. Communication via Slack/MS Teams mirrors modern dev team practice; technical submission via Blackboard and GitHub introduces professional expectations for clarity, structure, and code commenting; and awareness of GDPR, data ethics, and responsible AI is developed across modules including Development of AI and Computer Forensics. Students are expected to adopt professional behaviours from induction onward — prompt communication, constructive feedback, resilience under deadline pressure, and transparent disclosure of AI tool use.

	By systematically embedding these professional behaviours into the technical curriculum, the programme ensures that graduates emerge as resilient, "T-shaped" early-career professionals — combining genuine technical capability with the interpersonal, organisational, and ethical skills required for career longevity. In a sector characterised by rapid obsolescence and the disruptive rise of technologies like Generative AI, this comprehensive approach privileges adaptability, reflective practice, and ethical judgement over rote learning. By normalising industry-standard practices — from Agile collaboration to responsible AI use — within the educational environment, the Foundation Degree produces resourceful graduates who are not merely prepared for their first technical role, but equipped with the behavioural foundations to progress into the Level 6 Top-Up or to grow into senior positions over the course of a career in the evolving global digital landscape.
19	Sustainability Sustainability is embedded across the programme both in terms of environmental responsibility and the long-term sustainability of the digital workforce. Students are encouraged to think critically about the societal and environmental impact of computing solutions and develop ethically informed, future-facing practices. Environmental Responsibility Learners are introduced to the environmental impact of digital systems early in the programme. In Computer Systems and Network Fundamentals, students explore the energy efficiency of different hardware and network architectures, including the implications of running always-on cloud services. In Development of AI and ML, ethical and environmental discussions include the carbon footprint of training large-scale machine learning models. Students are encouraged to consider resource optimisation in their model design and feature selection. Assessment tasks frequently include a requirement to evaluate the sustainability of proposed solutions, especially when designing digital infrastructure or processing large data sets. Students are taught to consider how their technical decisions influence long-term environmental impact. In Web Development and Software Development, performance and optimisation are discussed not only in terms of speed but also in terms of energy use and system load. In Business Intelligence and Analytics, data processing choices (e.g., batch vs. stream, local vs. cloud) are explored with respect to their sustainability and efficiency. These topics are reinforced through industry-informed case studies that demonstrate how optimised systems can reduce both cost and carbon impact. In the Software Development pathway, Mobile Application Development frames code efficiency directly as an energy issue. Students learn that optimising processor cycles and background data usage is critical for preserving battery life and extending hardware lifecycles, thereby reducing e-waste. Similarly, in Foundations of Databases and Modern Data Architecture, the curriculum addresses "Data Sustainability" by teaching efficient schema design to prevent "Dark Data"—unused data that incurs a permanent carbon cost in storage and cooling. Workforce Sustainability and Professional Resilience The programme recognises that sustainability in tech is not only environmental—it is about creating a resilient, diverse, and ethically grounded workforce. This is developed through Professional Practice & Skills for Computing, which includes sessions on digital wellbeing, work-life balance, and inclusive workplace culture. To prepare students for the realities of the modern industry, the curriculum explicitly addresses Remote and Hybrid Working. Students are introduced to the tools and etiquettes of distributed teams, learning how to collaborate effectively across digital channels. This prepares them for Multi-

disciplinary Project Working, where they simulate the interaction between developers, designers, and stakeholders, understanding that sustainable projects rely on clear, empathetic communication across different roles.

Directly addressing the human aspect of the agenda, the Employability module includes a specific focus on the UN goal of Decent Work. It prepares students to manage the "always-on" culture of the tech industry to prevent burnout, building the Personal Resilience required to handle the pressure of deadlines and technical roadblocks. Furthermore, Ethical Hacking (Cyber Security pathway) and Research embed the social responsibility to protect public trust and infrastructure, ensuring that the digital economy remains a safe and sustainable environment.

The programme addresses the sustainability of the career itself by fostering adaptability. The curriculum encourages students to move beyond rote technical application to develop habits of Continuous Professional Development (CPD). By exposing learners to evolving toolchains not as static requirements but as examples of the current technological zeitgeist, we instil the expectation that tools will change, and that "learning how to learn" is the primary skill. This is to prepare students for the fast-paced and ever-changing job landscape in the Computer Science industry. Equipping them with the skills and knowledge to be able to apply for roles that are still evolving.

To support long-term workforce sustainability, technical best practices—such as version control, comprehensive documentation, and modular design—are taught not just as quality assurance measures, but as strategies for reducing cognitive load. By emphasising that "code is read more often than it is written," students learn that writing maintainable, clean code is an act of professional empathy that protects future teams from burnout.

By focusing on high-level problem solving and ethical judgment—skills that AI cannot easily replicate—the curriculum aims to "future-proof" graduates. This ensures they remain valuable contributors to the digital economy, capable of navigating tech obsolescence and maintaining a sustainable career trajectory.

20	Level 4				
	Code	Title	Credits	Core/Option	Compensatable / non-compensatable
		Introduction to Web Development	20	Core	Compensatable
		Introduction to Networks	20	Core	Compensatable
		Foundations of Programming	20	Core	Compensatable
		Foundations of Databases	20	Core	Compensatable
		Principles of Artificial Intelligence	20	Core	Compensatable
		Operating Systems & Scripting	20	Core	Compensatable
	Level 5				
	Code	Title	Credits	Core/Option	Compensatable / non-compensatable
		Application of AI	20	Core	Compensatable
		Emerging Trends and Cloud Computing	20	Core	Compensatable
		Employability	20	Core	Compensatable
		Research	20	Core	Compensatable
Data Analysis					
		Modern Data Architecture	20	Core	Compensatable
		Computational Statistics	20	Core	Compensatable
Software Development					
		Frontend Frameworks	20	Core	Compensatable
		Mobile Application Development	20	Core	Compensatable
Cyber Security					
		Ethical Hacking	20	Core	Compensatable
		Securing Networks	20	Core	Compensatable

21 Programme Structure

Students are expected to attend 10 hours a week during this course. 4.5 hours per module, we have also allocated 1 hour for tutorial/workshop session to help support students. The year is split up into 3 trimesters; each trimester consecutive of 10 weeks each. Below is an example of the structure of the 2 days. Please note that the times may change.

	Day 1	Day 2
9:00	Module 1 1.5 Hours	Module 1 1.5 Hours
9:15		
9:30		
9:45		
10:00		
10:15	Module 1 1.5 Hours	Tutorial/Workshop 1 Hours
10:30		
10:45		
11:00		
11:15		
11:30	Module 2 1.5 Hours	Module 2 1.5 Hours
11:45		
12:00		
12:15		
12:30		
12:45	Module 2 1.5 Hours	Module 2 1.5 Hours
13:00		
13:15		
13:30		
13:45		
14:00	Module 2 1.5 Hours	Module 2 1.5 Hours
14:15		
14:30		
14:45		
15:00		
15:15	Module 2 1.5 Hours	
15:30		
15:45		
16:00		
16:15		
16:30		
16:45		
17:00		

The programme is designed to provide a progressive and coherent learning experience, enabling students to build foundational knowledge, develop specialised skills, and culminate in application and research. Delivered over three academic years (full-time mode), the programme consists of three trimesters per year. Each trimester is carefully structured to ensure students acquire, apply, and synthesise knowledge in alignment with the programme's aims and outcomes.

This structure promotes flexibility, with opportunities for students to tailor their learning in later years through specialist pathways. The inclusion of team projects, employability-focused modules, and practical projects ensures a blend of theoretical and practical learning, preparing students for employment or further study.

Level 4: Foundational Knowledge and Skills

The first year establishes a solid foundation in core computer science principles, emphasising fundamental skills to progress onto the next years and specialisms.

	Module Name	Pathway
Trimester one 1 - 10	Introduction To Web Development	All Pathways
	Introduction to Network	All Pathways
Trimester two 11 - 20	Fundamentals of Programming	All Pathways
	Foundations of Databases	All Pathways
Trimester three 21- 30	Principles of Artificial Intelligence	All Pathways
	Operating Systems & Scripting	All Pathways

Trimester 1:

- Introduction to Web Development (Core, 20 Credits, Compensatable):
This module introduces the basics of web technologies, including HTML, CSS, and JavaScript, equipping students with essential web development skills.
- Introduction to Networks (Core, 20 Credits, Compensatable):
Students explore the fundamentals of computer networking, covering topics such as network architecture, protocols, and security basics.

Trimester 2:

- Foundations of Programming (Core, 20 Credits, Compensatable):
This module introduces core programming concepts, focusing on problem-solving techniques using a high-level language.
- Foundations of Databases (Core, 20 Credits, Compensatable):
Students learn about database management systems, including relational models, SQL, and data normalisation.

Trimester 3:

- Principles of Artificial Intelligence (Core, 20 Credits, Compensatable):
This module introduces AI concepts, including machine learning, search algorithms, and data-driven decision-making.
- Operating Systems & Scripting (Core, 20 Credits, Compensatable):
Students gain insights into operating system functions, scripting languages, and automation processes.

Level 5: Specialisation and Application

Level 5 include 2 specialist modules; these modules differ from the core modules by having a more focused emphasis on the specialised skills needed in the pathway. Specialist modules are to prepare students for the industry they include more learning outcomes by including specialist learning outcomes. This is because of the amount of specialist knowledge and skills students are expected to learn within them.

The second year allows students to apply foundational knowledge to real-world scenarios, fostering collaboration, employability, and a deeper understanding of emerging technologies.

	Module Name	Pathway
Trimester one 1 - 10	Application of Artificial Intelligence	All Pathways
	Emerging Trends and Cloud Computing	All Pathways
Trimester two 11 - 20	Employability	All Pathways
	Modern Data Architecture	Data Analyst
	Computational Statistics	Data Analyst
	Securing Networks	Cyber Security
	Software Testing	Software Development
	Frontend Frameworks	Software Development
Trimester three 21 - 30	Research	All Pathways
	Computational Statistics	Data Analyst
	Routing Protocols	Cyber Security
	Ethical Hacking	Cyber Security
	Mobile Application Development	Software Development

Trimester 1:

- Application of Artificial Intelligence: Explores practical applications of AI, introducing machine learning, natural language processing, and data-driven decision-making.
- Emerging Trends and Cloud Computing: Examines innovative developments in technology, encouraging innovation and forward-thinking.

Trimesters 2:

- Employability: Focuses on preparing students for professional environments, with emphasis on transferable skills like teamwork, communication, and adaptability.
- Cyber Pathway
 - Securing Networks: This module equips students with the skills to protect digital infrastructures by implementing advanced network security measures and responding to cybersecurity threats.
- Software Pathway
 - Frontend Development: This module covers the development of interactive and user-friendly web interfaces, emphasising modern frameworks and design principles to create responsive and accessible web applications.
- Data Analyst
 - Modern Data Architecture: This module explores the design and implementation of modern data architectures, combining theory and practical skills in data modelling, cloud analytics, and integration to support scalable, data-driven decision-making.

	<u>Trimesters 3:</u> • Research: Teaches students research methodologies and critical analysis, preparing them for their final project. • Cyber Pathway ○ Ethical Hacking: This module introduces students to the techniques and methodologies of ethical hacking, allowing them to assess the security of systems through penetration testing while adhering to legal and ethical standards. • Software Pathway ○ Mobile Application Development: This module equips students with the skills to design, develop, and deploy mobile applications, focusing on the practical aspects of user interface design, mobile development frameworks, and application performance. • Data Analyst Pathway ○ Computational Stats: This module provides students with the statistical and computational tools necessary for analysing complex data sets, emphasising the application of statistical methods to solve problems in computer science and data analytics. <u>Modes of Delivery</u> The programme is delivered full-time, with potential for future implementation of part-time or blended/virtual learning options. Full-time delivery includes: Integration of Learning: Modules are sequenced to build progressively on knowledge and skills, ensuring students experience a coherent journey from foundational to advanced levels.
22	Apprenticeships N/A
23	Support for Students and Their Learning At University Centre Leeds we have a specialised Student Support team where students can access support for learning, wellbeing, welfare, and financial support, designed to suit the needs of individual students and support their studies. This support includes access to diagnostic assessments and an Additional Learning Support Officer who can provide disability advice and Study Skills for students with a disability, neurodiversity, diagnosed mental health condition, or long-term health condition. The team will support eligible students to apply for Disabled Students' allowance (DSA); a government grant to provide individualised support such as specialist computer equipment, assistive software, mentoring support, study skills support, and/or or help with travel costs. Working with the student, the team will agree tailored support for learning including accessible learning practices, adjustments, and additional considerations. Our Counsellors provide tailored support to students including confidential short term counselling support, workshops, mentoring, referral and signposting, self-care tools, and resources to promote resilience and positive mental health. Our Student Funding and Welfare Adviser provides students with support to help understand how student finance works, find out what financial support is available, apply for student finance, how to manage budgets and money matters, and other financial guidance and advice to ensure students feel prepared financially whilst studying. They also offer advice on bursaries and financial support available. The Student Accommodation Adviser can support students to find suitable housing options that are right for them to study, socialise and mix with other like-minded students. They will offer guidance on accommodation available and ensure that all students feel supported, included, and equipped to succeed. There is also specific support available for students who have cared experienced, estranged, carers, or seeking sanctuary.

The University Centre Leeds library offers a range of physical and online resources. The online resources, including eBooks, ejournals and specialist websites are available to students whether they are on site or off campus. The HE Librarian can deliver a range of study skills sessions, in areas such as academic skills, research skills, critical thinking, and referencing. These can be for student groups or as 1:1 session for individual students, to support their overall information literacy and the development of their academic, research and digital skills.

Student support is central to the design and delivery of the Foundation Degree in Computer Science. Support mechanisms are in place from enrolment through to graduation to ensure that learners are well-prepared, personally supported, and professionally confident throughout their studies.

Academic and Tutorial Support

- Weekly group tutorials for the first 5 weeks of the programme (induction and transition focus)
- Fortnightly 1:1 tutorial after week 5 for academic coaching, pastoral support, and progress tracking
- Additional tutorials available on request for students requiring targeted help or additional mentoring

Tutorial sessions provide a space for learners to reflect on progress, discuss feedback, develop action plans, and set personal and academic goals.

Study Skills and Digital Support

Students have access to academic skills support through the institution's central services, including:

- Library and Learning Resources Centre (LRC): In-person and digital access to computing resources, e-journals, and referencing guidance
- Study Skills Workshops: Covering academic writing, referencing (Harvard), critical thinking, and exam preparation
- Digital Skills Hub: Supporting use of platforms such as Blackboard, Turnitin, Microsoft Office, and coding platforms used in modules (e.g. GitHub, Replit)

These services are promoted during induction and embedded into Level 4 through the Professional Practice & Skills for Computing module.

Wellbeing, Mental Health, and SEND Support

The programme works in close collaboration with the institution's central Wellbeing and Inclusion Team. Support includes:

- Mental health drop-ins and counselling referrals
- Specialist support for learners with SEND, including reasonable adjustments, study plans, and assistive technologies
- Inclusive teaching and assessment practices, reviewed annually by the course team and support staff

All personal tutors are trained in recognising early signs of disengagement and mental health concerns and can refer students to central services.

Careers and Employability

	All learners have access to careers and progression support including: • 1:1 career coaching session • Support with CV writing, job search skills, and interview preparation • Employer networking through guest lectures and industry panels • Targeted sessions on freelance, contract, and graduate opportunities in the digital sector Students will undertake practical sessions within the dedicated server room, allowing for hands-on engagement with industry-standard hardware. To ensure safety and security, access is strictly supervised; students must be always accompanied by a staff member, and the facility remains locked when not in use.
24	Distinctive Features This Foundation Degree in Computer Science is a practical, industry-aligned programme designed to equip students with the technical foundations, professional behaviours, and applied skills required to enter the digital sector at graduate technician level or to progress with confidence into a Level 6 top-up qualification. Shaped by employer consultation across the Cyber Security, Data Analysis, and Software Development sectors, the curriculum combines solid theoretical grounding with substantial hands-on practice, ensuring that students develop both the understanding and the demonstrable capability that employers consistently identify as baseline expectations for early-career technical hires. A central feature of the programme is its commitment to specialist depth combined with breadth. Three clearly defined pathways — Cyber Security, Data Analysis, and Software Development — allow students to develop genuine specialist competence aligned with current occupational standards and industry demand, while a common core ensures that every graduate develops the foundational networking, programming, data, and professional practice skills that underpin technical work across all three areas. This structure reflects the realities of contemporary technical teams, where specialists routinely work alongside peers with different expertise and must communicate effectively across disciplines. The programme places strong emphasis on practical, applied learning. The curriculum integrates scaffolded hands-on projects across both years, building from guided exercises at Level 4 to substantial team-based and individual capstone work at Level 5. Students engage with the kinds of tasks they will encounter in early-career roles — designing software solutions, analysing datasets, configuring networks, responding to security scenarios — developing technical competence alongside the problem-solving, planning, and collaboration skills that distinguish effective technical practitioners. At each level, project work is pitched at the appropriate register: guided and structured at Level 4, with increasing student ownership and open-ended challenge as students progress to Level 5. Team-based working is a deliberate and substantial component of the programme, reflecting employer feedback that technically capable graduates who cannot communicate, collaborate, and deliver within a team are of limited value to modern digital organisations. Students work in teams across multiple modules, developing the practical disciplines of collaborative delivery — including shared version control, code and work review, structured communication, and productive handling of disagreement. The programme's assessment design acknowledges student concerns about group-based grading by focusing assessment of team projects on each student's individual contribution, supported by clear evidence through task allocation, version

control records, peer assessment, and individual reflective components — ensuring that collaborative pedagogy does not compromise individual assessment fairness.

Blended learning is used deliberately to develop the remote and distributed working practices now established as standard in the digital sector. Rather than treating blended delivery purely as a matter of flexibility, the programme uses its online components to build students' capacity for asynchronous collaboration, self-directed time management, and effective communication across digital platforms — the practical disciplines of modern technical work that cannot be developed through purely face-to-face teaching. Students graduate with demonstrable experience of the working patterns they will encounter in contemporary technical roles.

The curriculum also prepares students to engage with emerging technology rather than only with current practice. Modules including Principles of AI, Application of AI, and Emerging Trends and Cloud Computing introduce students to the transformative developments shaping the sector — including machine learning, generative AI, cloud-native architectures, and the ethical considerations that responsible practice in these areas demands. Critically, these modules build students' capacity to evaluate emerging tools and practices critically rather than only to use them, laying the foundation for the habit of continuous learning that a career in computing will require.

Delivery combines traditional lectures, practical workshops, laboratory sessions, and technology-enhanced learning to support different learning modes and student preferences. Assessment methods are deliberately varied, incorporating portfolios, presentations, practical problem-solving tasks, technical coursework, and reflective components — giving students authentic experience of the range of ways technical work is evaluated in professional contexts while ensuring assessment design is inclusive and supports diverse learners.

The programme places strong emphasis on student support and developmental progression. Through tailored employability sessions, personal tutoring, project supervision, and access to advanced study skills resources, students are supported in developing not only technical capability but also the confidence, reflective practice, and professional identity needed to make a successful transition into early-career roles or into Level 6 study. The structured development of reflective practice across both years lays the foundation for the continuing professional development habit that underpins long-term career success in a sector defined by continuous change.

In summary, this programme's distinctive combination of industry-aligned curriculum, specialist pathways grounded in a strong common core, substantial applied practice, authentic team working, emerging technology engagement, and structured student support produces graduates who are equipped both with the technical foundations required for immediate entry into the digital sector and with the professional behaviours needed to continue developing across a career in a rapidly evolving field. This builds mastery of specialist pathways by requiring students to define their own technical parameters rather than following a pre-set script.

Stage Outcomes (Undergraduate Awards only)

No.	Stage/Level 5(2)	Stage/Level 4(1)
K1	Evaluate theories and principles throughout computer science.	Identify the key theories, concepts, and principles in computing.
K2	Analyse software-specific techniques within computer science.	Describe key programme-specific techniques in computing.
K3	Analyse the ethical and legal implications relevant to computer science.	Identify and explain ethical and legal issues in computing.
C1	Assess sources to support appropriate data/evidence.	Gather sources and summarise evidence to support appropriate data.
C2	Create and integrate new ideas and techniques into current practices.	Use emerging ideas and techniques into practices.
C3	Appraise solutions for computing problems using relevant software and tools.	Identify basic tools and methods to solve computing problems.
P1	Develop and use range of professional standard technical skills and workflows in a chosen computing sector.	Use foundational technical skills and workflows within a computing sector.
P2:	Create innovative solutions to complex challenges/problems using computing techniques.	Use existing solutions to address computing challenges.
P3	Integrate appropriate industry-standard tools and software in computing practices.	Use basic industry tools and software in computing practices.
P4	Apply multiple frameworks to develop industry-relevant solutions.	Use recognised frameworks to develop computing solutions.
T1	Create clear, effective communications tailored to a specific context.	Communicate ideas in an understandable way suitable for the context.
T2	Examine and assess emerging workflows in the computing industry.	Identify and contrast emerging workflows in the computing industry.
Data Analysis		

DA1	Recognise data-driven problems by selecting appropriate models, algorithms, and strategies to inform decision-making.	Identify data-driven problems by selecting appropriate models and algorithms to inform decision-making.
DA2	Prepare data analytical tools and techniques to gather, normalise, process, model, and present insights from datasets.	Use data analytical tools and techniques to gather and normalise to present insights from datasets.
Cyber Security		
CS1	Appraise and apply potential cyber security issues and appropriate methodologies, to propose effective mitigation strategies.	Outline potential cyber security issues and methodologies, to propose and apply mitigation strategies and solutions.
CS2	Demonstrate a thorough understanding of cybersecurity principles to explain how data confidentiality, integrity, and availability are maintained.	Show understanding of cybersecurity principles to explain how data confidentiality, integrity, and availability are maintained.
Software Development		
SD1	Respond to complex software development problems across multiple platforms and prepare structured engineering principles to design scalable, user-focused solutions.	Identify software development problems and use engineering principles to design user-focused solutions.
SD2	Effectively apply software development methodologies, testing strategies, and platform-specific considerations in the implementation and testing of applications.	Show an understanding of software development methodologies in the development and testing of application.

Map of Outcomes to Modules

Outcome Key																		
Module Titles	K1	K2	K3	C1	C2	C3	P1	P2	P3	P4	T1	T2	DA1	DA2	CS1	CS2	SD1	SD2
Introduction To Web Development	X			X			X				X							
Foundations of Programming		X			X			X				X						
Foundations of Databases			X			X			X			X						
Principles of Artificial Intelligence	X			X			X				X							
Introduction to Networks		X			X			X		X								
Operating Systems & Scripting			X			X			X	X								
Lv5																		
Module Titles	K1	K2	K3	C1	C2	C3	P1	P2	P3	P4	T1	T2	DA1	DA2	CS1	CS2	SD1	SD2
Application of Artificial Intelligence			X	X					X	X								
Employability		X			X		X				X							
Emerging Trends and Cloud Computing		X			X				X	X								
Research			X	X			X				X							
Cyber Security Pathway																		
Securing Networks	X					X		X				X			X	X		
Ethical Hacking	X					X		X				X			X	X		
Software Development Pathway																		
Front End Frameworks	X					X		X				X					X	X
Mobile Applications Development	X					X		X				X					X	X
Data Analysis Pathway																		
Modern Data Architecture	X					X		X				X	X	X				
Computational Statistics	X					X		X				X	X	X				

Map of Teaching and Learning Methods
Level 4

Module Titles	Methods				
	Lectures	Case Studies	Skills Workshops	Practical's (design and production sessions)	E Learning/ On-line forums
Introduction To Web Development	X	X	X	X	X
Foundations of Programming	X	X	X	X	X
Foundations of Databases	X	X	X	X	X
Principles of Artificial Intelligence	X	X	X	X	X
Intro to Networks Core	X	X	X	X	X
Operating Systems & Scripting	X	X	X	X	X

Level 5

Methods						
Module Titles	Lectures	Case Studies	Skills Workshops	Practical's (design and production sessions)	E Learning/ On-line forums	Skills Assessment
Application of Artificial Intelligence	X	X	X	X	X	
Employability	X	X		X	X	
Research	X	X		X	X	
Emerging Trends and Cloud Computing						
Cyber Security Pathway						
Securing Networks	X	X	X	X	X	X
Ethical Hacking	X	X	X	X	X	X
Software Development Pathway						
Front End Frameworks	X	X	X	X	X	
Mobile Applications Development	X	X	X	X	X	
Data Analysis Pathway						
Modern Data Architecture	X	X	X	X	X	
Computational Statistics	X	X	X	X	X	

Appendix 4
Map of Assessment Methods
Level 4

Methods					
Module Titles	Reflective E-Journal	E-Portfolio	Viva	Presentation	Practical
Introduction To Web Development				30% (min 10mins wk 4)	70% (2 Assets wk 10)
Introduction to Networks	30% (1000 words wk 10)				70% (2 Assets wk 8)
Foundations of Programming		30% (1000 words wk 20)			70% (2 Assets wk 19)
Foundations To Databases			30% (min 10mins wk 17)		70% (2 Assets wk 20)
Operating Systems & Scripting				30% (1 poster wk 27)	70% (2 Assets wk 30)
Principles of AI			30% (min 10mins wk 30)		70% (2 Assets wk 28)

Level 5

Methods							
Module Titles	Report	Reflective E-Journal	Skills Based Assessment	E-Portfolio	Viva	Presentation	Practical

Application of Artificial Intelligence						40% (min 20mins wk 6)	60% (2 Assets wk 10)
Emerging Trends & Cloud Computing		30% (1200 words wk 10)					70% (3 Assets wk 8)
Employability				40% (1800 words wk 17)	60% (min 20mins wk 20)		
Research	30% (1200 words wk 27)						70% (3 Assets wk 30)
Cyber Security Pathway							
Securing Networks						30% (15mins wk 16)	70% (3 Assets wk 20)
Ethical Hacking			30% (1200 words wk 26)				70% (3 Assets wk 30)
Software Development Pathway							
Front End Frameworks					30% (min 10mins wk 18)		70% (3 Assets wk 20)
Mobile Applications Development		30% (1200 words wk 26)					70% (3 Assets wk 30)
Data Analyst Pathway							
Modern Data Architecture						40% (20mins wk 17)	60% (2 Assets wk 20)
Computational Statistics	40% (1600 words wk 26)						60% (2 Assets wk 30)

HTQ Mapping

Data Analyst

Category	KSB ID	Knowledge, Skills, and Behaviours (KSBs)	Relevant Module(s)
Knowledge	K1	current relevant legislation and its application to the safe use of data	Employability, Computational Statistics
	K2	organisational data and information security standards, policies, and procedures relevant to data management activities	Employability, Foundations of Databases
	K3	principles of the data life cycle and the steps involved in carrying out routine data analysis tasks	Fundamentals To Databases, Research, Computational Statistics
	K4	principles of data, including open and public data, administrative data, and research data	Research, Computational Statistics
	K5	the differences between structured and unstructured data	Fundamentals To Databases, Principles of AI
	K6	the fundamentals of data structures, database system design, implementation, and maintenance	Fundamentals To Databases
	K7	principles of user experience and domain context for data analytics	Introduction To Web Development, Computational Statistics
	K8	quality risks inherent in data and how to mitigate/resolve these	Research, Computational Statistics
	K9	principal approaches to defining customer requirements for data analysis	Research, Employability, Computational Statistics
	K10	approaches to combining data from different sources	Fundamentals To Databases, Computational Statistics
	K11	approaches to organisational tools and methods for data analysis	Emerging Trends & Cloud Computing, Computational Statistics, Computational Statistics
	K12	organisational data architecture	Fundamentals To Databases, Emerging Trends & Cloud Computing

	K13	principles of statistics for analysing datasets	Computational Statistics
	K14	the principles of descriptive, predictive, and prescriptive analytics	Principles of AI, Application of Artificial Intelligence, Computational Statistics, Computational Statistics
	K15	the ethical aspects associated with the use of and collation of data	Employability, Research, Principles of AI
Skills	S1	use data systems securely to meet requirements and in line with organisational procedures and legislation, including principles of Privacy by Design	Fundamentals To Databases, Operating Systems & Scripting, Computational Statistics
	S2	implement the stages of the data analysis lifecycle	Research, Computational Statistics
	S3	apply principles of data classification within data analysis activity	Fundamentals To Databases, Computational Statistics
	S4	analyse data sets taking account of different data structures and database designs	Fundamentals To Databases, Application of Artificial Intelligence, Computational Statistics
	S5	assess the impact on user experience and domain context on the data analysis activity	Introduction To Web Development, Computational Statistics
	S6	identify and escalate quality risks in data analysis with suggested mitigation/resolutions as appropriate	Research, Computational Statistics
	S7	undertake customer requirements analysis and implement findings in data analytics planning and outputs	Research, Employability, Computational Statistics
	S8	identify data sources and the risks, challenges to combination within data analysis activity	Fundamentals To Databases, Research, Computational Statistics
	S9	apply organisational architecture requirements to data analysis activities	Fundamentals To Databases, Emerging Trends & Cloud Computing
	S10	apply statistical methodologies to data analysis tasks	Computational Statistics
	S11	apply predictive analytics in the collation and use of data	Application of Artificial Intelligence, Computational Statistics
	S12	collaborate and communicate with a range of internal and external stakeholders using appropriate styles and behaviours to suit the audience	Employability, Research
	S13	use a range of analytical techniques such as data mining, time series forecasting and modelling techniques to identify and predict trends and patterns in data	Application of Artificial Intelligence, Computational Statistics

	S14	collate and interpret qualitative and quantitative data and convert into infographics, reports, tables, dashboards, and graphs	Computational Statistics, Research
	S15	select and apply the most appropriate data tools to achieve the best outcome	Fundamentals of Programming, Operating Systems & Scripting, Computational Statistics
Behaviour	B1	maintain productive, professional, and secure working environment	Employability, Introduction to Networks
	B2	shows initiative, being resourceful when faced with a problem and taking responsibility for solving problems within their own remit	All modules
	B3	works independently and collaboratively	Research, Employability, Computational Statistics, Computational Statistics
	B4	logical and analytical	Fundamentals of Programming, Principles of AI, Application of Artificial Intelligence, Computational Statistics, Computational Statistics
	B5	identifies issues quickly, enjoys investigating and solving complex problems and applies appropriate solutions. Has a strong desire to push to ensure the true root cause of any problem is found, and a solution is identified which prevents recurrence.	All technical modules
	B6	demonstrates resilience by viewing obstacles as challenges and learning from failure	Research, Employability
	B7	demonstrates an ability to adapt to changing contexts within the scope of a project, direction of the organisation or Data Analyst role	Employability, Research, Emerging Trends & Cloud Computing

Software Developer

Category	KSB ID	Knowledge, Skills, and Behaviours (KSBs)	Relevant Module(s)
Knowledge	K1	all stages of the software development life cycle	Research, Employability, Fundamentals of Programming

	K2	roles and responsibilities within the software development lifecycle	Research, Employability
	K3	the roles and responsibilities of the project life cycle within your organisation, and your role	Employability, Research
	K4	how best to communicate using the different communication methods and how to adapt appropriately to different audiences	Employability, Research
	K5	the similarities and differences between different software development methodologies, such as agile and waterfall	Research, Employability
	K6	how teams work effectively to produce software and how to contribute appropriately	Employability, Research
	K7	software design approaches and patterns, to identify reusable solutions to commonly occurring problems	Fundamentals of Programming, Front End Frameworks, Mobile Applications Development
	K8	organisational policies and procedures relating to the tasks being undertaken, and when to follow them	Employability, Research
	K9	principles of algorithms, logic, and data structures	Fundamentals of Programming, Principles of AI
	K10	principles and uses of relational and non-relational databases	Fundamentals To Databases
	K11	software designs and functional/technical specifications	Research, Fundamentals of Programming, Front End Frameworks, Mobile Applications Development
	K12	software testing frameworks and methodologies	Research, Fundamentals of Programming
Skills	S1	create logical and maintainable codes	Fundamentals of Programming, Introduction to Web Development, Front End Frameworks, Mobile Applications Development, Operating Systems & Scripting
	S2	develop effective user interfaces	Introduction To Web Development, Front End Frameworks, Mobile Applications Development
	S3	link code to data sets	Fundamentals of Programming, Foundations of Databases, Mobile Applications Development
	S4	test code and analyse results to correct errors found using unit testing	Fundamentals of Programming, Front End Frameworks, Mobile Applications Development

	S5	conduct a range of test types, such as Integration, System, User Acceptance, Non-Functional, Performance and Security testing	Research, Fundamentals of Programming
	S6	identify and create test scenarios	Research, Fundamentals of Programming
	S7	apply structured techniques to problem solving, can debug code and can understand the structure of programmes to identify and resolve issues	Fundamentals of Programming, Principles of AI, Application of Artificial Intelligence
	S8	create simple software designs to effectively communicate understanding of the program	Fundamentals of Programming, Research
	S9	create analysis artefacts, such as use cases and/or user stories	Research, Employability
	S10	build, manage and deploy code into the relevant environment	Operating Systems & Scripting, Emerging Trends & Cloud Computing, Mobile Applications Development
	S11	apply an appropriate software development approach according to the relevant paradigm	Fundamentals of Programming, Research
	S12	follow software designs and functional/technical specifications	Fundamentals of Programming, Front End Frameworks, Mobile Applications Development
	S13	follow testing frameworks and methodologies	Research, Fundamentals of Programming
	S14	follow company, team or client approaches to continuous integration, version, and source control	Employability, Emerging Trends & Cloud Computing
	S15	communicate software solutions and ideas to technical and non-technical stakeholders	Employability, Research
	S16	apply algorithms, logic, and data structures	Fundamentals of Programming, Principles of AI
	S17	interpret and implement a given design whilst remaining compliant with security and maintainability requirements	Introduction To Web Development, Front End Frameworks, Mobile Applications Development
Behaviour	B1	Works independently and takes responsibility	All modules, especially Research
	B2	Applies logical thinking	All technical modules, especially Fundamentals of Programming, Principles of AI, Front End Frameworks, Mobile Applications Development
	B3	Maintains a productive, professional, and secure working environment	Employability, Introduction to Networks, Emerging Trends & Cloud Computing

	B4	Works collaboratively with a wide range of people in different roles	Employability, Research
	B5	Acts with integrity with respect to ethical, legal, and regulatory ensuring the protection of personal data, safety, and security	Employability, Research
	B6	Shows initiative for solving problems within their own remit, being resourceful when faced with a problem to solve	All modules
	B7	Communicates effectively in a variety of situations to both a technical and non-technical audience	Employability, Research
	B8	Shows curiosity to the business context in which the solution will be used	All modules, especially Research, Employability, and Emerging Trends & Cloud Computing
	B9	Demonstrates creativity and tenacity in their approach to solutions	All project-based work across technical modules, especially Mobile Applications Development and Front-End Frameworks
	B10	Committed to continued professional development	Employability

Cyber Security Technologist

Category	KSB ID	Knowledge, Skills, and Behaviours (KSBs)	Relevant Module(s)
Knowledge	K1	Principles of networks: OSI/TCP/IP, protocols, routing, performance, failure modes, virtual networking.	Introduction to Networks, Securing Networks
	K2	Concepts, functions, and security features of at least three Operating Systems (OS).	Operating Systems & Scripting
	K3	Cyber security concepts, business/societal importance, security assurance, and penetration testing.	Securing Networks, Ethical Hacking, Employability
	K4	Common attack techniques, human behaviour/insider threat, motive/opportunity, and defence strategies.	Ethical Hacking, Securing Networks
	K5	Trends in cyber threats, value/risk of analysis, and dealing with emerging/zero-day attacks.	Ethical Hacking, Securing Networks, Emerging Trends & Cloud Computing
	K6	Lifecycle and service management practices (e.g., ITIL foundation).	Employability, Research

	K7	Cyber incident response processes, incident management, and evidence collection/preservation.	Ethical Hacking, Securing Networks
	K8	Relevant laws, regulations, and standards (e.g., GDPR, Computer Misuse Act, ISO 27001).	Employability, Research, Securing Networks
	K9	Ethical principles and codes of practice from a professional cyber security body.	Employability, Research
	K10	Analysing requirements to derive security objectives and develop a reasoned security case.	Research, Securing Networks
	K11	Horizon scanning and using recognised sources of threat intelligence and vulnerabilities.	Ethical Hacking, Securing Networks
	K12	Common security architectures, methodologies, and deployment of hardware/software components.	Introduction to Networks, Securing Networks, Emerging Trends & Cloud Computing
	K13	Basic cryptography concepts, techniques, key management, and legal/regulatory issues.	Securing Networks
	K14	Risk assessment/audit methodologies, vulnerability identification, threat intelligence lifecycle, and risk owner role.	Securing Networks, Ethical Hacking, Research
	K15	Principles of security management systems, including governance, roles, policies, and standards.	Employability, Securing Networks
	K16	Function, features, architectures, and common vulnerabilities of digital systems.	Operating Systems & Scripting, Introduction to Networks, Securing Networks
	K17	Programming or scripting languages.	Fundamentals of Programming, Operating Systems & Scripting
Skills	S1	Discover vulnerabilities in a system by using a mix of research and practical exploration.	Ethical Hacking, Securing Networks
	S2	Analyse and evaluate security threats and hazards, using external intelligence sources.	Ethical Hacking, Securing Networks
	S3	Research and investigate common attack techniques and recommend defences.	Ethical Hacking, Research
	S4	Undertake security risk assessments for simple systems and propose basic remediation.	Securing Networks, Ethical Hacking

	S5	Source and analyse security cases, describe risk mitigation, and identify residual concerns.	Securing Networks, Research
	S6	Develop a security case with reasoned justification based on customer requirements and threat context.	Securing Networks, Research
	S7	Identify and follow organisational policies, standards, and service level agreements.	Employability, Securing Networks
	S8	Configure, deploy, and use computer, digital network, and cyber security technology.	Operating Systems & Scripting, Introduction to Networks, Securing Networks, Ethical Hacking
	S9	Recommend improvements to cyber security posture based on research into future potential threats.	Ethical Hacking, Emerging Trends & Cloud Computing, Research
	S10	Design, build, test and troubleshoot a multi-subnet network with static and dynamic routing.	Introduction to Networks, Securing Networks
	S11	Analyse and trade-off between security requirements and other design constraints (e.g., cost, usability).	Securing Networks, Research
	S12	Design and build systems in accordance with a security case, selecting and configuring components.	Securing Networks, Introduction to Networks
	S13	Write program code or scripts to meet a given design requirement.	Fundamentals of Programming, Operating Systems & Scripting
	S14	Design systems employing encryption and develop a key management plan.	Securing Networks
	S15	Use tools, techniques, and processes to actively prevent breaches to digital system security.	Ethical Hacking, Securing Networks, Operating Systems & Scripting
	S16	Conduct cyber-risk assessments against a recognised standard using a recognised methodology.	Securing Networks, Ethical Hacking
	S17	Identify cyber security threats relevant to a defined context.	Ethical Hacking, Securing Networks
	S18	Develop information security policies or processes to address identified risks.	Securing Networks, Employability
	S19	Develop information security policies that account for relevant legislation and regulation.	Securing Networks, Employability, Research
	S20	Participate in security audits, undertake gap analysis, and recommend remediation.	Securing Networks

	S21	Develop plans for incident response for approval.	Securing Networks
	S22	Develop plans for local business continuity for approval.	Employability, Securing Networks
	S23	Assess security culture using a recognised approach.	Employability, Ethical Hacking
	S24	Design and implement a simple 'security awareness' campaign.	Employability
	S25	Integrate and correlate information from various sources (logs, SIEM) to identify breaches.	Ethical Hacking, Securing Networks
	S26	Recognise anomalies in digital system data structures and behaviours (e.g., network packets, logs).	Introduction to Networks, Securing Networks, Ethical Hacking
	S27	Accurately, objectively, and concisely record and report cyber security information.	Research, Employability
	S28	Configure digital system monitoring and analysis tools (e.g., SIEM).	Securing Networks, Ethical Hacking
	S29	Undertake root cause analysis of events and make recommendations to reduce false alerts.	Ethical Hacking, Securing Networks
	S30	Manage local response to non-major incidents in accordance with a defined procedure.	Securing Networks
Behaviour	B1	Logical	All technical modules
	B2	Analytical	Ethical Hacking, Securing Networks, Research, Application of Artificial Intelligence
	B3	Works independently and takes responsibility	All modules, especially Research
	B4	Shows initiative	All modules
	B5	Thorough & organised	All modules, especially Research and Ethical Hacking
	B6	Works effectively with a wide range of people	Employability, Research
	B7	Communicates effectively	Employability, Research
	B8	Maintains a productive, professional, and secure working environment	Employability, Securing Networks

	B9	Creative	Ethical Hacking, Fundamentals of Programming
	B10	Problem Solving	All technical modules, especially Ethical Hacking, Securing Networks, Operating Systems & Scripting

Map Subject Benchmarks to Programme and Module Learning Outcomes

Review your QAA Subject Benchmark and cross reference this to modules within your programme and identify where subject benchmarks are being achieved throughout the programme.

Subject Benchmark Area			
Threshold Level	Module & Learning Outcomes	Typical Level	Module & Learning Outcomes
Demonstrate a requisite understanding of the main body of knowledge for their subject	Introduction To Web Development (K1) Fundamentals of Programming (K2) Principles of Artificial Intelligence (K1) Introduction to Networks (K2)	Demonstrate a sound understanding of the main body of knowledge for their subject and be able to exercise critical judgement in the use of that knowledge	Application of Artificial Intelligence (K1, K3) Employability (K2, K3) Emerging Trends and Cloud Computing (K2) Research (K3) Securing Networks (K2)
Understand and apply essential concepts, principles, and practices of the subject in the context of well-defined scenarios, showing judgement in the selection and application of tools and techniques	Introduction To Web Development (P1, P3) Fundamentals of Programming (P1, P3) Foundations of Databases (P1, P3) Principles of Artificial Intelligence (P1, P3) Introduction to Networks (P1, P3) Operating Systems & Scripting (P1, P3)	Critically analyse and apply concepts, principles, and practices of the subject in the context of loosely defined scenarios, showing effective judgement and adaptability in the selection and use of tools and techniques	Application of Artificial Intelligence (P4) Emerging Trends and Cloud Computing (P4) Securing Networks (P4) Ethical Hacking (P4) Front End Frameworks (P4) Mobile Applications Development (P4)

Be able to demonstrate judgement, critical thinking, and problem-solving skills to solve well-specified problems, to create computational artefacts with a degree of independence	Foundations of Databases (C3, P2) Operating Systems & Scripting (C3, P2)	Be able to demonstrate detailed judgement, critical thinking, and problem-solving skills to solve both well-specified and loosely defined problems, to create appropriate computational artefacts	Application of Artificial Intelligence (C3, P2) Ethical Hacking (C3, P2) Front End Frameworks (C3, P2) Mobile Applications Development (C3, P2)
Demonstrate the ability to undertake problem identification and analysis to appropriately design, develop, test, integrate or deploy a computing system and any associated artefacts; understand the relationship between stages	Introduction To Web Development (C1, P4) Fundamentals of Programming (C1, P4) Principles of Artificial Intelligence (C1, P4) Foundations of Databases (C1)	Demonstrate the ability to undertake problem identification and analysis to appropriately design, develop, test, integrate or deploy a complex computing system and any associated artefacts; understand the relationship between stages and be able to demonstrate related problem-solving and evidence-informed evaluative skills	Research (C1, C2) Application of Artificial Intelligence (C2) Emerging Trends and Cloud Computing (C2)
Demonstrate the ability to work in an effective manner, including as a member of a team, making use of tools and techniques to appropriately communicate, manage tasks and plan projects under guidance	Introduction To Web Development (T2) Fundamentals of Programming (T2)	Demonstrate the ability to work in a proactive and effective manner, including as a member of a team, making good use of tools and techniques to successfully communicate, manage tasks and plan projects with minimum guidance	Employability (T1) Research (T1)
Identify appropriate practices and perform work within a professional, legal, and ethical framework –	Foundations of Databases (K3) Principles of Artificial Intelligence (K3)	Identify appropriate practices and effect principled solutions within a professional, legal, and	Employability (K3) Research (K3) Application of Artificial Intelligence (K3)

including data management and use, security, equality, diversity and inclusion (EDI) and sustainability – in the work that they undertake		ethical framework to address core considerations – including data management and use, security, equality, diversity and inclusion (EDI) and sustainability – in the work that they undertake	
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